UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/812,053	03/30/2004	Shinichi Nagaoka	Q80741	1299

23373 7590 08/03/2007		EXAMINER
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ART UNIT	PAPER NUMBER
1732	

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08/03/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>05 July 2007</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-20_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-20_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

Double Patenting

1.   In response to Applicant's filing of the Terminal Disclaimers, the provisional

rejection on the ground of nonstatutory obviousness-type double patenting has been

withdrawn.

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

3.   Claims 1 and 3-20 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Wilson Pat. No. 6,558,605 taken together with either Yu et al. Pat. No. 6,096,088

or Friedl et al. Pat. No. 6,816,820.

4.   Wilson (col. 8, lines 13-22) discloses a process determining the time sequence of

the injection molding operation empirically by well known conventional mold fill

analyses.

5.   Yu (col. 1, lines 11-25 and col. 13, lines 28-44) teaches determining optimum

gate locations and processing condition by performing simulation to analyze proposed

shapes and injection points which can predict the location of weld lines and air traps.

These analyses are used for the required determination of the injection mold pressure

limits for the injection molding machine (col. 1, lines 18-23). Yu (col. 3, lines 1-18)

discloses linking the flow analysis from the injection points and providing time steps which would be a time sequence. Friedl (see abstract, col. 1, lines 31-57 and col. 33, lines 29-32) teaches the determining of the number and location of the gates using a numerical analysis and the pressures for filling and packing. It would have been obvious to use the well known and conventional numerical flow analysis and optimization of either Yu or Friedl to determine the time sequence of the gates since these produce the desired flow within the mold cavity.

6.   Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wilson Pat. No. 6,558,605 taken together with either Yu et al. Pat. No. 6,096,088 or Friedl et al. Pat. No. 6,816,820 as applied to claims 1 and 3-20 above, and further in view of Norton Pat. No. 6,454,973.

7.   Norton (col. 1, lines 46-67) teaches the well known problems that are overcome by using time sequenced valve gates in injection molding for providing proper fill of the cavity and optimum clamp tonnage. It would have been obvious to a person of ordinary skill in the art to use the flow analysis simulations of Yu or Friedl for determining the desired fill sequence and clamping force (pressure) since these are commonly optimized in the injection molding process parameters.

Response to Arguments

8.   Applicant's arguments, see bottom of page 7 and top of page 8, filed July 5, 2007, with respect to 35 U.S.C. 101 have been fully considered and are persuasive. The rejected under 35 U.S.C. 101 has been withdrawn.

9.   Applicant's arguments filed July 5, 2007 have been fully considered but they are

not persuasive.

10.   Applicants argue that Wilson does not disclose "obtaining mold design

parameters by combination of a numerical analysis method for calculating an injection

molding process and a computer-aided optimization method". However, Wilson

discloses the known software for simulating and optimizing the gate locations and hot

runner diameters for a balanced fill (col. 1, lines 28-31) and the alternative use of

"conventional mold fill analyses may be used to determine the appropriate sequencing

of the gated nozzles to achieve the desired melt front advancement and fill balancing"

(col. 8, lines 15-18). Applicant argues that Wilson is not directed to controlling or

optimizing gate sequence timing. However, Wilson (col. 7, lines 18-24 and claim 1)

discusses the controller 68 for the valve gate timing.

11.   Applicants argue that Yu and Friedl do not disclose "obtaining mold design

parameters by combination of a numerical analysis method for calculating an injection

molding process and a computer-aided optimization method" and that Yu and Friedl use

experience about an injection molding and trial and error and needed to obtain

optimized parameters. Friedl clearly uses numerical analysis and computer-aided

optimization which is described at col. 1, lines 31-57 and col. 5, line 28-col. 6, line 37.

Yu clearly uses numerical analysis and computer-aided optimization which is described

at col. 13, lines 12-43.

12.   Applicant argues that Yu is unrelated to determining time-sequentially an inflow

of resin material from resin inflow conduits. However, Yu discloses the prediction of

weld lines (col. 1, lines 25), the plurality of injection points and the calculation time steps (col. 3, lines 1-17). Clearly the time sequence of the flow within the cavity is simulated from the plurality of gates. Friedl discloses modeling flows of different materials simultaneously or sequentially in the same mold (col. 33, lines 29-31) and thus is related to sequential flow.

13.   Norton teaches the solving of the problems of fill balancing and clamp tonnage, such as having more fluid flow into a large area or mass and a smaller amount flow into the small area or mass. Also, see Norton col. 18, lines 5-57 which describe the improvement of disclosed by Norton.

14.   Applicant argues that Norton is only directed to opening and closing a single gate. However, Norton discloses multiple gates at col. 1, lines 46-67.

15.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.
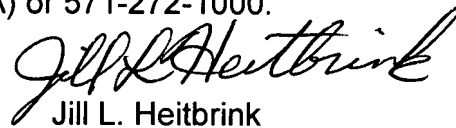
16.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jill L. Heitbrink whose telephone number is (571) 272-1199. The examiner can normally be reached on Monday-Friday 9 am -2 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jill L. Heitbrink
Primary Examiner
Art Unit 1732

jlh